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Longitudinal and torsional vibrations of size-dependent rods via nonlocal integral elasticity

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Highlights

- Longitudinal and torsional vibrations of size-dependent rods is studied by nonlocal integral elasticity.
- The developed nonlocal integral models are both self-consistent and well-posed.
- Asymptotic solutions of predicting longitudinal and torsional frequencies are derived for nonlocal integral models.
- Closed-form solutions for longitudinal and torsional dispersion relations are obtained.
- Scaling effect on the dispersion relation and frequencies of CNT, graphene and Si are studied.

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